The Military Nursing Outcomes Database (MilNOD) Program of Research: *Standardizing Nurse Staffing and Patient Outcome Indicator Measurement in the DoD*

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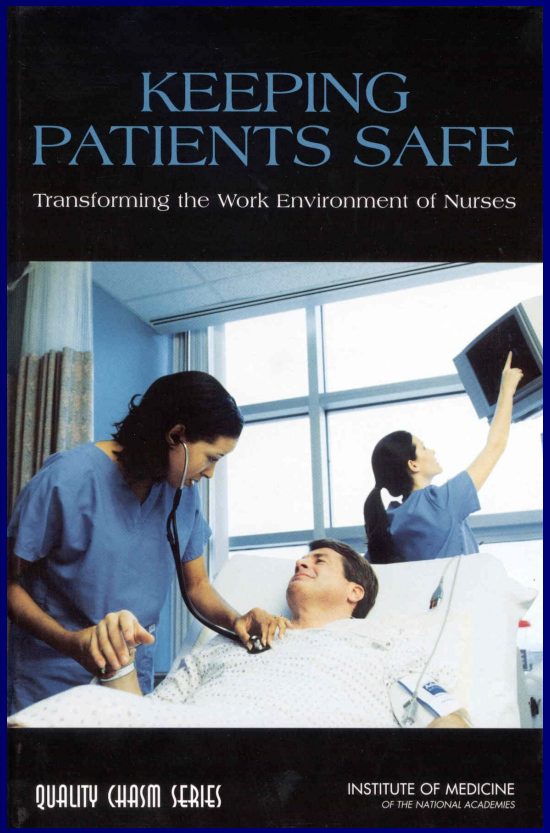
Overview

- Context
- Background
- Description
- Journey
- Outcomes to date
- Professional dividends
- The road ahead

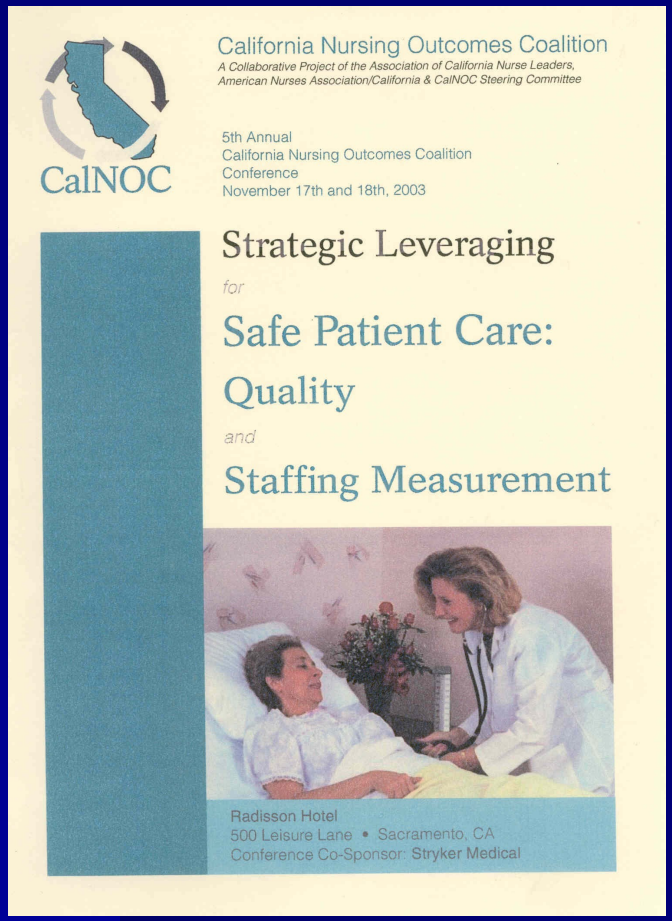
Nurse Staffing and Patient Outcomes



Institute of Medicine (IOM) Quality Series:

- **To Err is Human**
- **Crossing the Quality Chasm**
- **Transforming the Work Environment of Nurses**
- **CRITICAL ROLE OF NURSES IN PATIENT SAFETY**

Nurse Staffing and Patient Outcomes



California Nursing Outcomes Coalition (CalNOC)

- **Leading the nation in quality and staffing measurement**
- **135 hospitals regularly participate**
- **Standardized data definitions and collection**

NQF Initial Performance Set: National Voluntary Consensus Standards for Nurse Sensitive Care

- Failure to rescue
- Pressure ulcer prevalence
- Hospital–acquired pneumonia
- Falls and falls with injury
- Restraint prevalence
- UTI
- Urinary cath assoc infections (ICU)
- Central line cath assoc infections (ICU or HRN)
- Vent-associated pneumonia (ICU or HRN)
- Smoking cessation counseling (AMI, CAP, CHF)
- Nursing skill mix
- Nursing care hours per patient day
- Practice Environment Scale of the Nursing Work Index
- Nursing education level

Background

- A growing national trend towards standardized measurement of nurse staffing and patient outcome indicators
- Limited standardized nurse staffing and nurse-sensitive patient outcome reporting mechanisms in use in Department of Defense (DoD) military treatment facilities (MTFs)
- Difficult to compare staffing adequacy or to compare outcomes among DoD MTFs

Background

- Military nurse leaders need and seek decision support tools
- Established Nursing Research Centers in the Army
- Great potential in DoD to conduct research that examines relationships among nurse staffing and nursing-sensitive patient outcomes
- Small MTFs often lack assets needed to examine staffing effectiveness and patient safety

What is MilNOD?

- A method of data collection and analysis that standardizes definitions and allows comparison among hospital nursing units and hospitals in the DoD – a set of decision support tools
- A multi-phased program of research designed to explore the association between nursing structural (staffing, experience, etc) indicators, specific explanatory variables, and nursing-sensitive outcomes.
- A data collection and analytic framework for examining staffing effectiveness and patient safety

JCAHO Indicators

- *Human Resources*
  - NCH/Patient Day
  - Agency use
  - Staff injuries
  - Staff satisfaction
  - Staffing adequacy
- *Clinical/Service*
  - Injuries to patients
  - Patient falls
  - Skin breakdown
  - Med errors

MilNOD Indicators

- Nursing Structural Indicators (RN, LPN, NA, Reservist, contract nurses)
  - Nursing care hours
  - Nursing skill mix
  - Nursing staff education and experience
- Explanatory Variables
  - Patient acuity
  - Patient turnover
- Contextual Features: Work environment attributes
- Nursing Outcomes
  - Job satisfaction
  - Needlestick injuries

MilNOD Indicators

- Patient Outcomes:
  - Pressure ulcer prevalence
  - Restraint use prevalence
  - Falls
  - Satisfaction with:
    - Care in general
    - Discharge planning
    - Pain management
    - Education
  - Nurse committed medication errors

Overall Goals: MilNOD

- Collect data to support evidence based clinical and administrative decisions
- Create a valid and reliable database consisting of nurse staffing and patient safety data
- Provide a basis for benchmarking and comparison among DoD MTFs

MilNOD Team

- Principal Investigators:
  - Lori Loan, PhD, RNC, MAMC
  - COL Laura Brosch, MRMC
  - LTC Pat Patrician, WRAMC
- Associate Investigators:
  - LTC Deb Kenny, WRAMC
  - LTC Mona Bingham, MAMC
- Project Director: Mary McCarthy, MN, RN, CNSN, MAMC
- Site Manager: Jim Williams, BBA, WRAMC

MilNOD Team

- Database Manager: Kay O'Cullane, BA, MAMC
- Research Assistants:
  - Naomi Gibson
  - Maureen Salafai
  - Tammy Wolf
- Consultants:
  - Diane Brown, RN, PhD, CA Nursing Outcomes Coalition (CalNOC)
  - Nancy Donaldson, RN, PhD, FAAN, CalNOC
  - Bonnie Jennings, RN, DNSc, FAAN

How did we get here?

It’s been a journey…

MilNOD Program of Research

1997 MAMC nurse researchers conduct study testing the feasibility of collecting ANA Report Card Indicators. **(Phase I)** **Hildreth, P., Jennings, B.M., Loan, L.A., DePaul, D. & Brosch, L.R. (1999). *Linking Nursing Care to ANA Quality Indicators* [N97-011]. Final report to the TriService Nursing Research Program. ($19,172)**

2000 CALNOC Partners with Army Nursing Researchers

Army Nursing Outcomes Data (ANOD) Base Feasibility Study funded by TSNRP **(Phase II)**

2001 ANOD results provides standardized comparisons between WRAMC and MAMC

Evolution of MilNOD

2002 MilNOD is funded by TSNRP. All 3 Services involved – 7 military hospitals. **(Phase III)** $611,000

2003 MilNOD continuation funded by TSNRP. Extend to 7 additional hospitals and begin to assess relationships among nurse staffing and patient outcome indicator data at the shift and day levels. **(Phase IV)** $799,899.

MilNOD III Participating Military Treatment Facilities

Military Treatment Facility (Location)	TRICARE Region	Service	Average Daily Census (Size)	Number of Units Participating in Study	Approximate Number Of Nursing Personnel Participating In Study
Walter Reed Army Medical Center (Washington, DC)	Northeast	Army	185 (large)	12	349
Womack Army Medical Center (Fort Bragg, NC)	Mid Atlantic	Army	93 (medium)	3	111
Malcolm Grow Medical Center (Andrews Air Force Base, MD)	Northeast	Air Force	42 (medium)	3	107
DeWitt Army Community Hospital (Fort Belvoir, VA)	Northeast	Army	22 (small)	2	31
Madigan Army Medical Center (Tacoma, WA)	Northwest	Army	128 (large)	5	158
Naval Hospital Bremerton (Bremerton, WA)	Northwest	Navy	77 (medium)	2	70
Naval Hospital Oak Harbor, (Whidbey Island, WA)	Northwest	Navy	25 (small)	1	27
7 MTFs			**552 Total Average Daily Census**	**28 Nursing Units**	**853 Nursing Personnel**

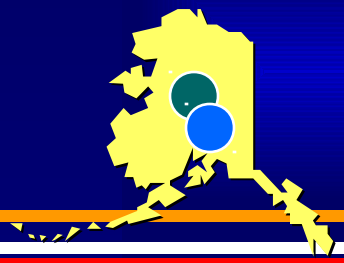
MilNOD IV Participants

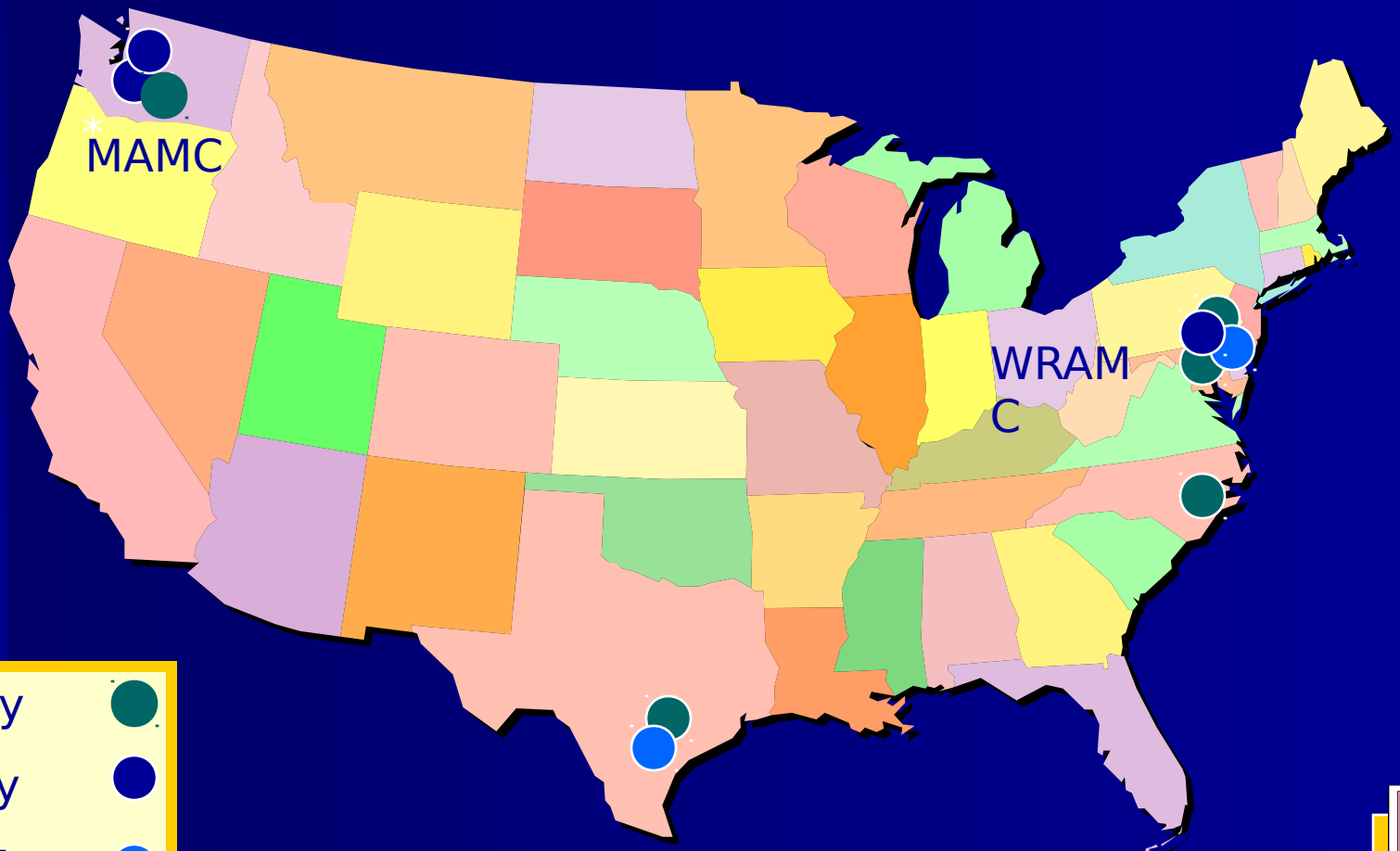
Walter Reed Army Medical Center , Wash D.C
Madigan Army Medical Center, WA
DeWitt Army Community Hospital, VA
Womack Army Medical Center, NC
Brooke Army Medical Center, TX
Bassett Army Community Hospital, AK

Malcolm Grow Medical Center, MD
Wilford Hall Medical Medical Center, TX
Elmendorf Air Force Base Hospital, AK
(One more AF site)

Naval Hospital Bremerton, Bremerton, WA
Naval Hospital Oak Harbor, WA
National Naval Medical Center Bethesda,
(One more Navy site)

MilNOD IV Sites





Army

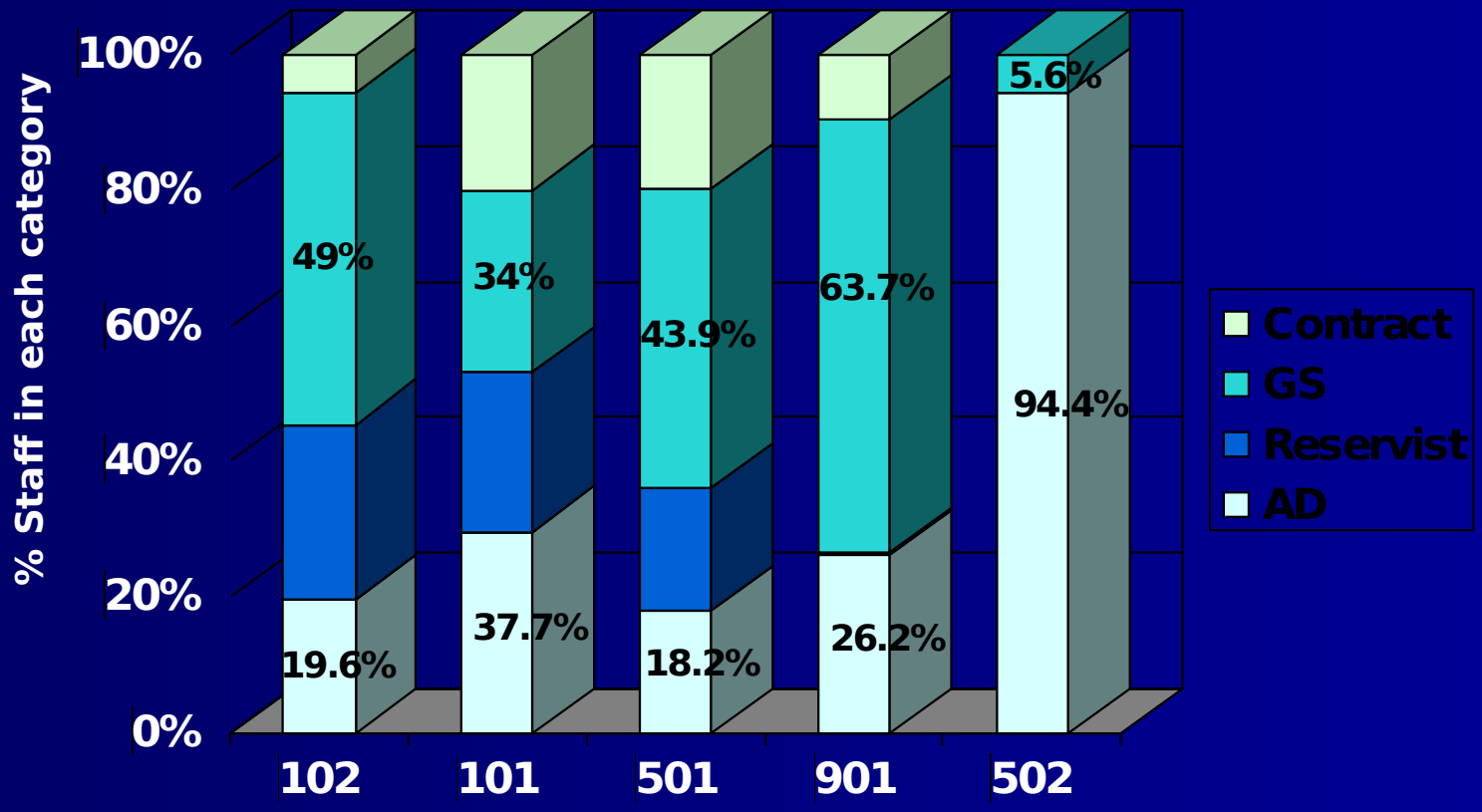
Navy

Air Force

Military Nursing Outcomes Database

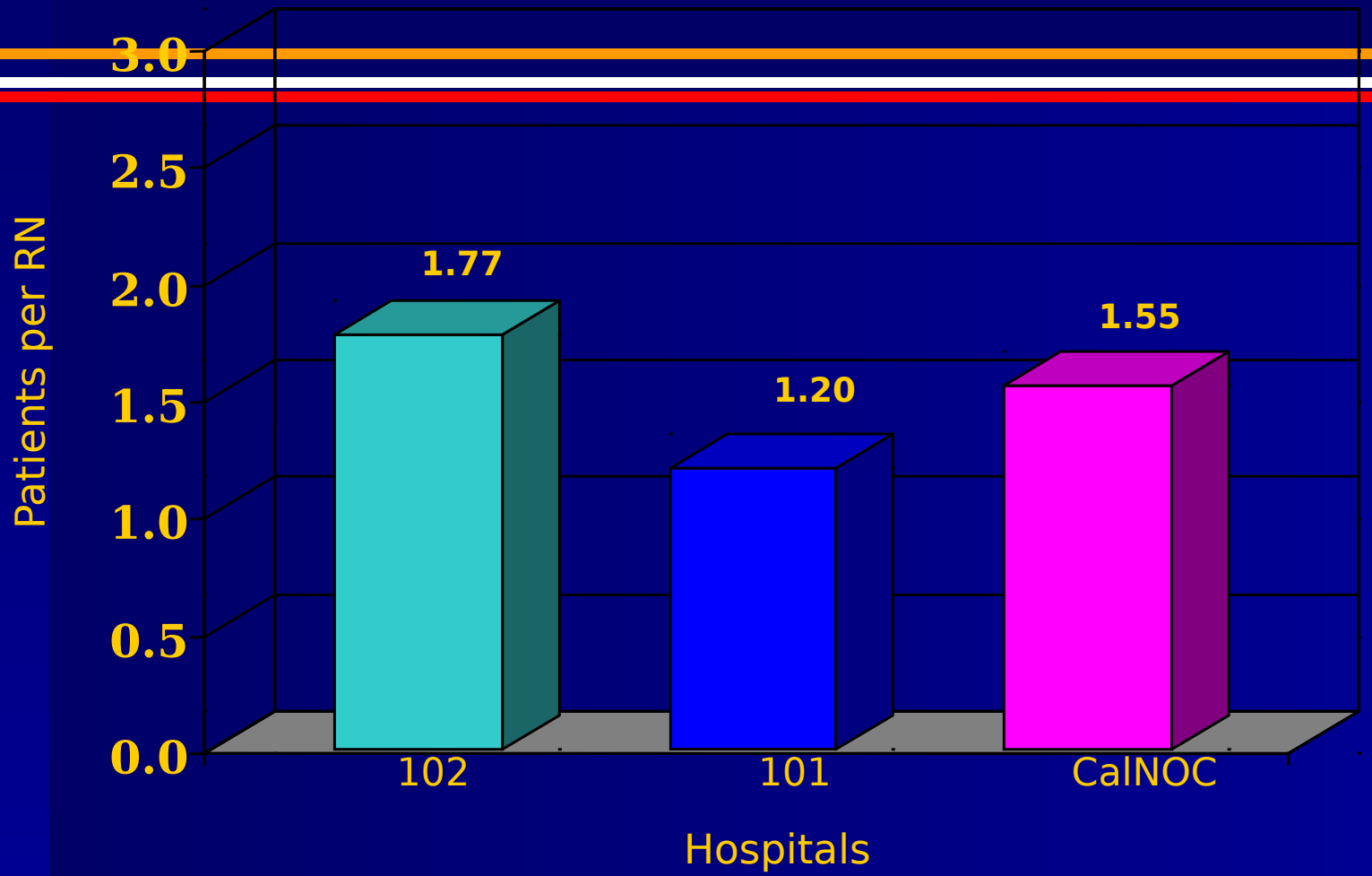
Sample MilNOD Quarterly Reports

Staff Categories
All MilNOD Facilities



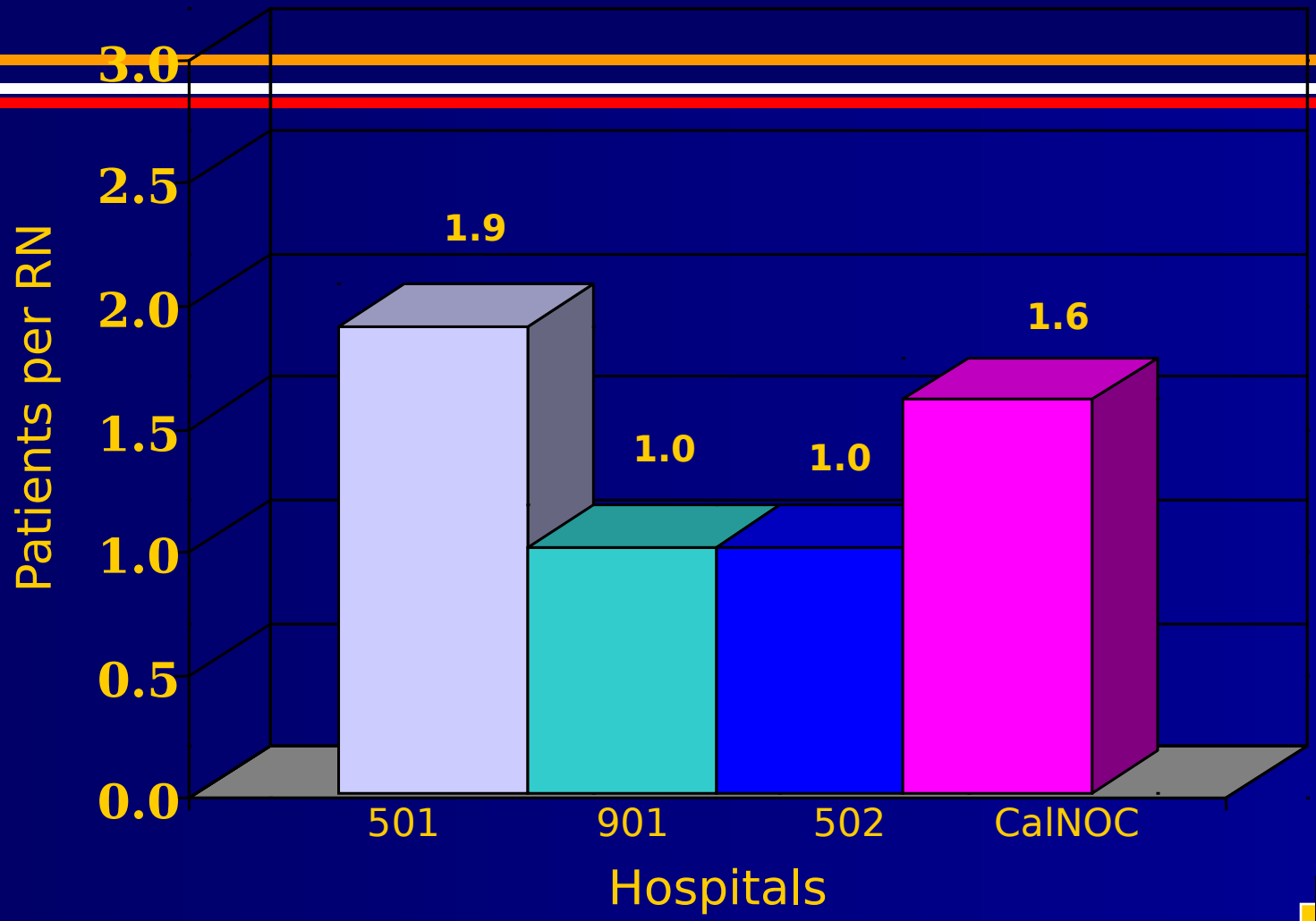
Critical Care Units Census 100-199

Average # of Patients per RN

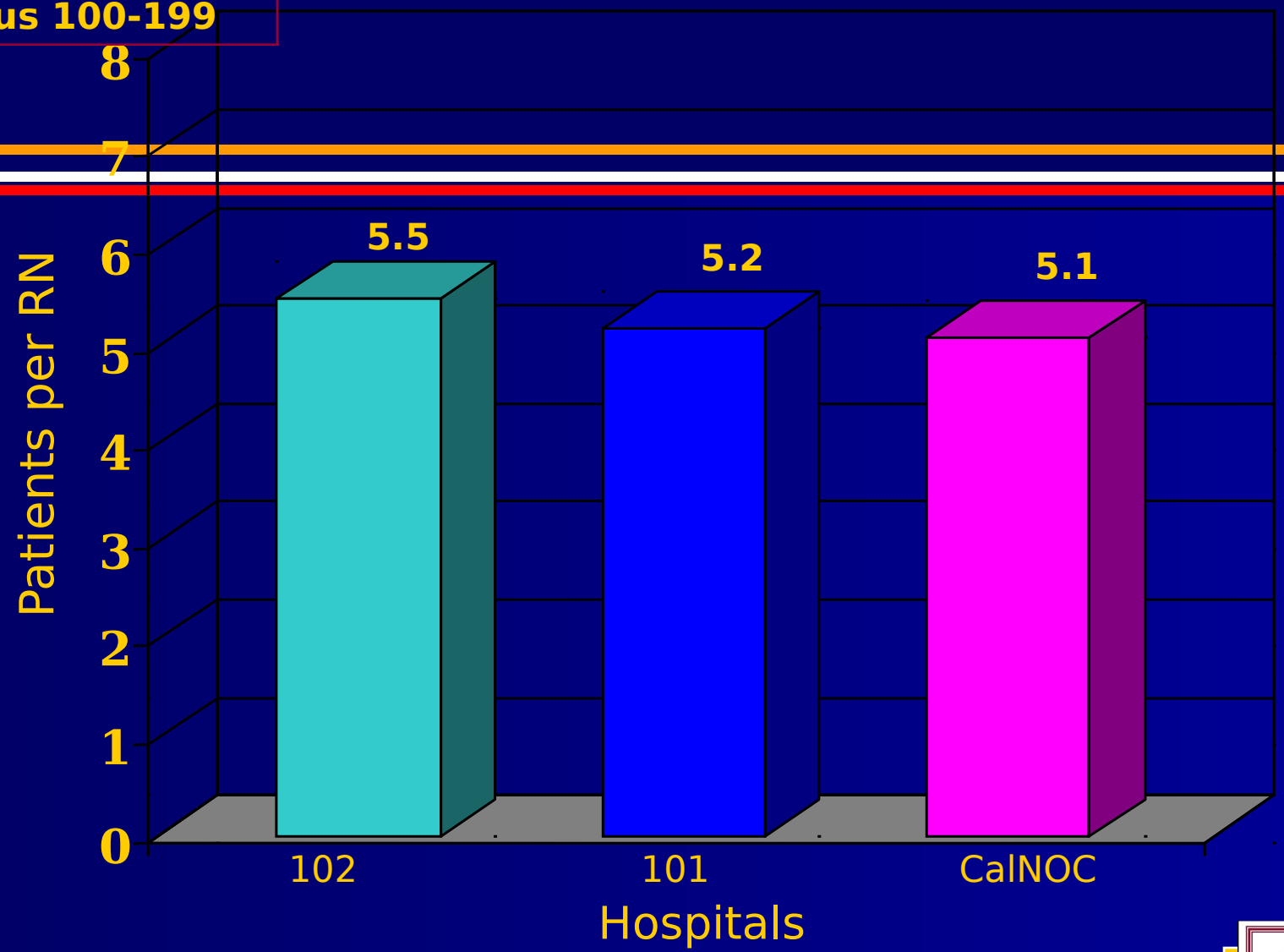


Critical Care Units Census <100

Average # of Patients per RN

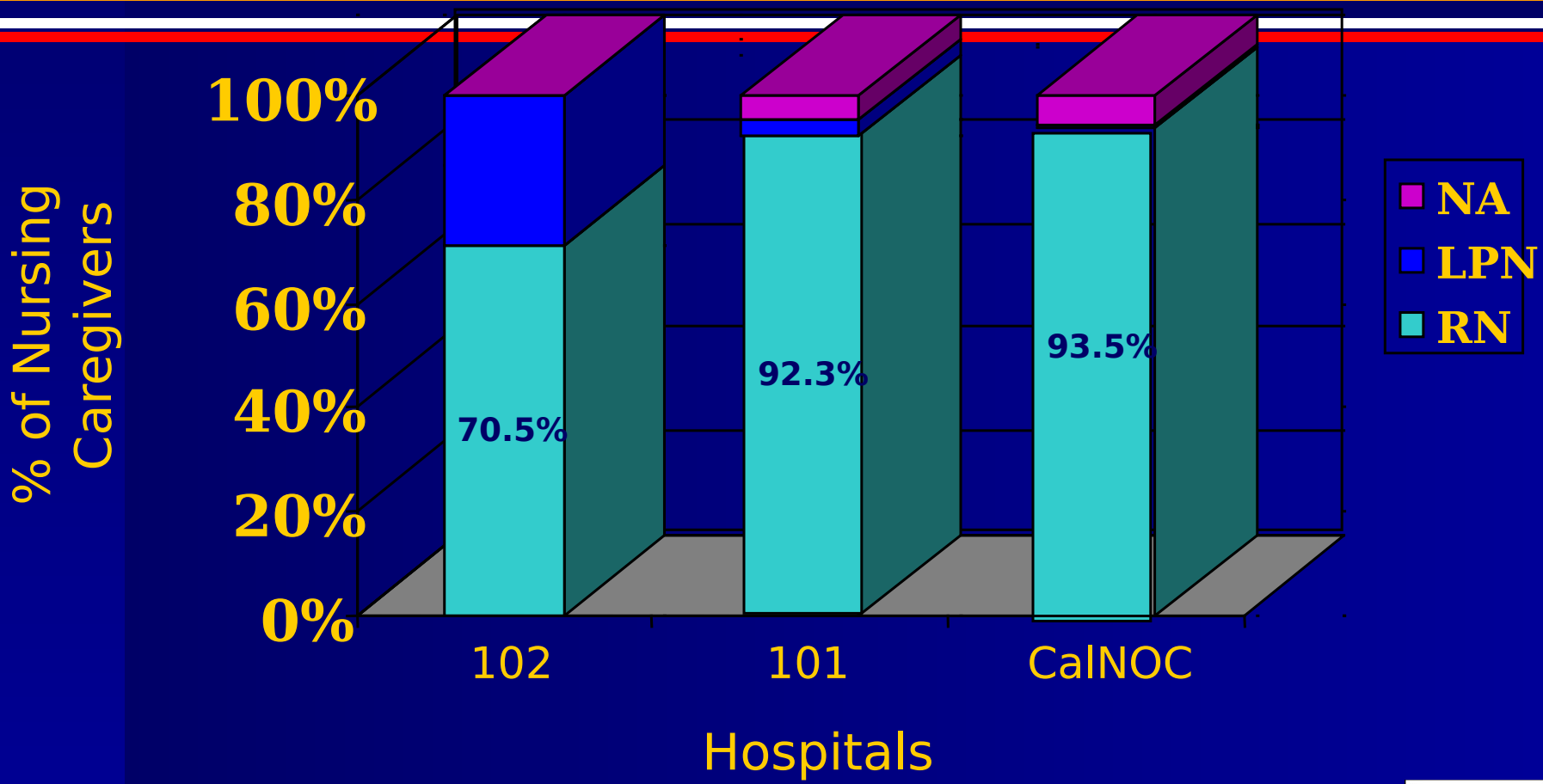


Medical Surgical Units
Census 100-199



Critical Care Units Census 100-199

Average Daily Nursing Skill Mix



Medical Surgical Units
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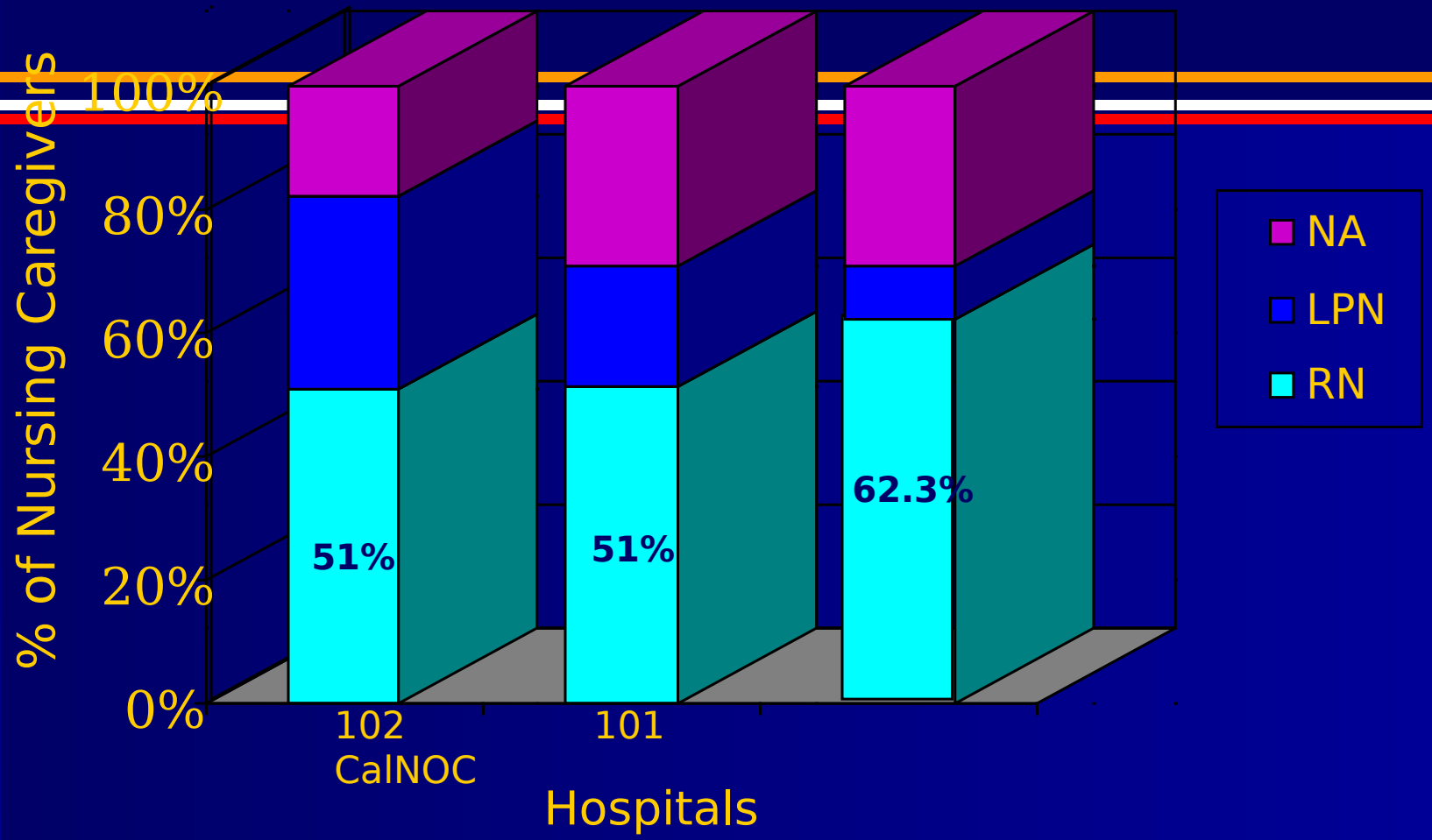
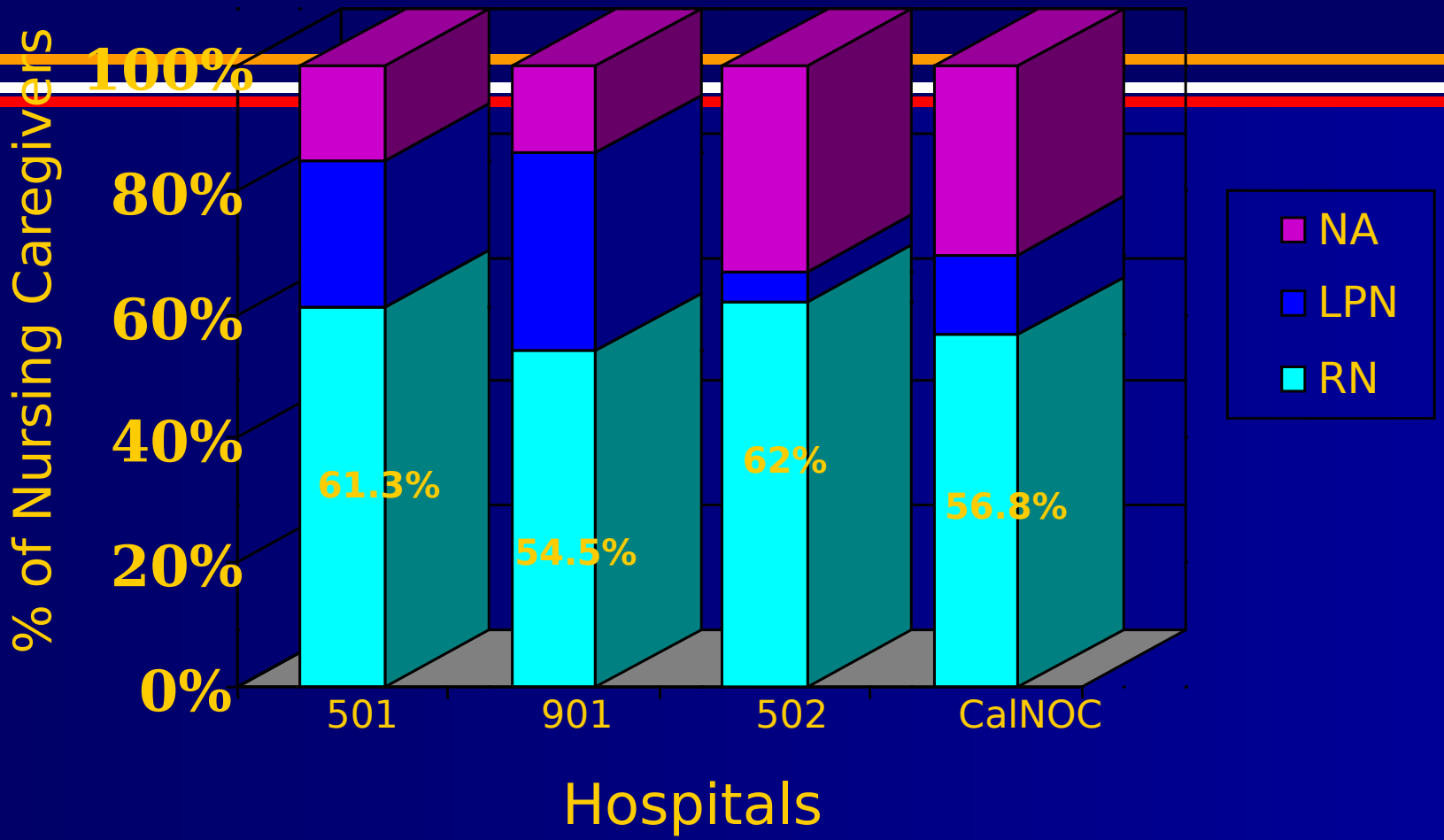
Average Daily Nursing Skill Mix



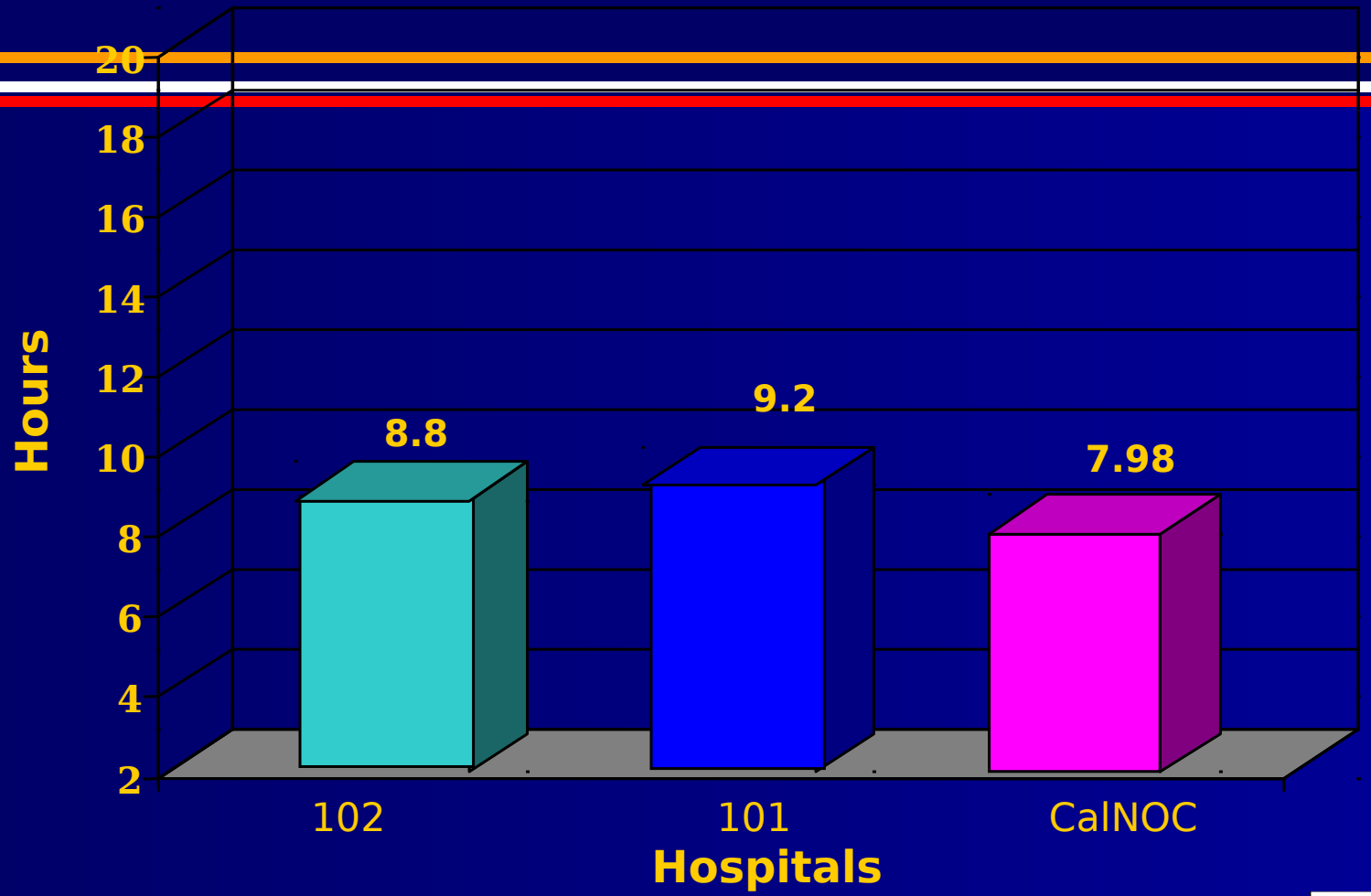
Medical Surgical Units
Census <100

Average Daily Nursing Skill Mix



Medical Surgical Units
Census 100-199

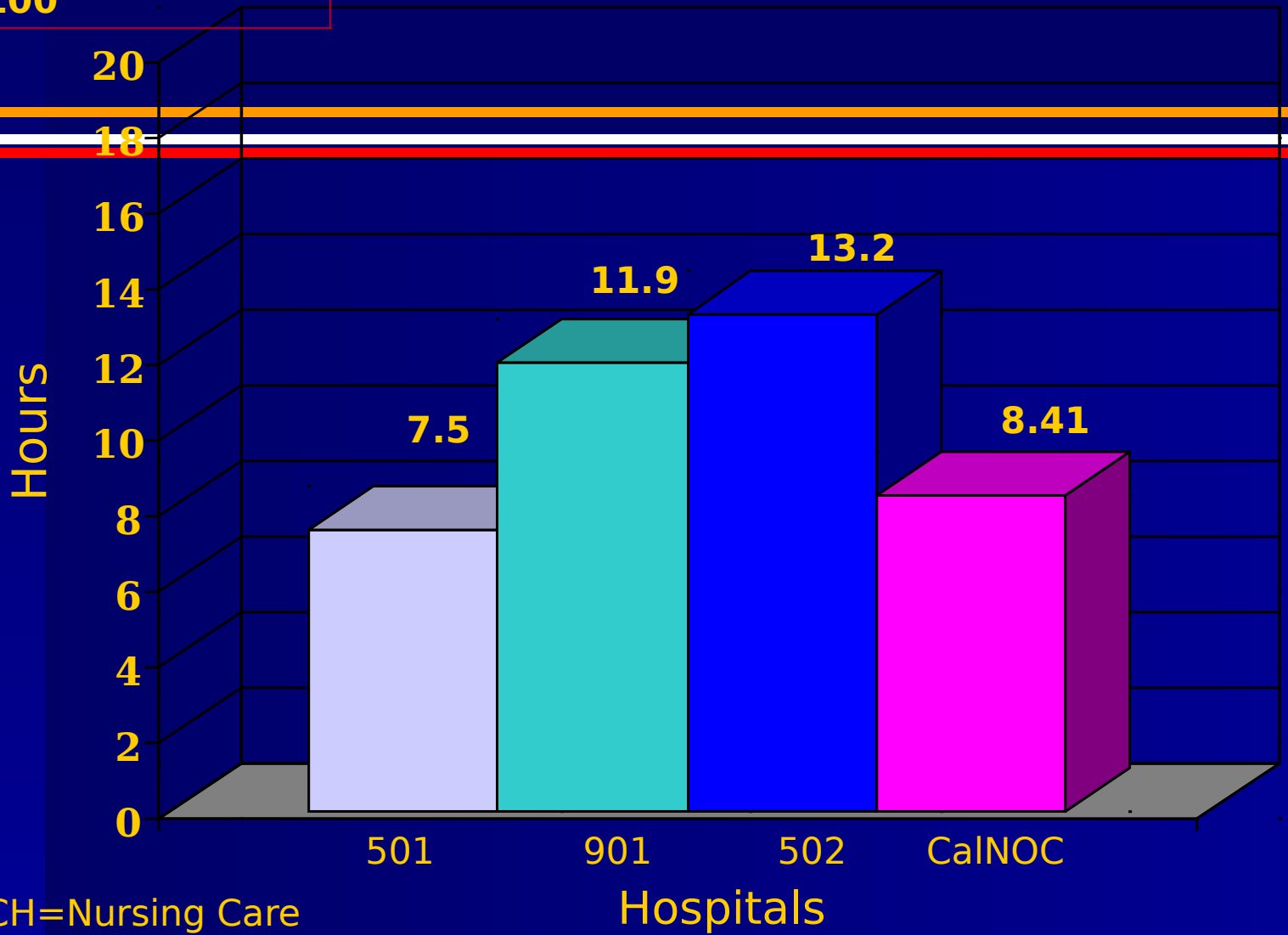
Average NCH*/Patient Day



*NCH=Nursing Care Hours

Medical Surgical Units Census <100

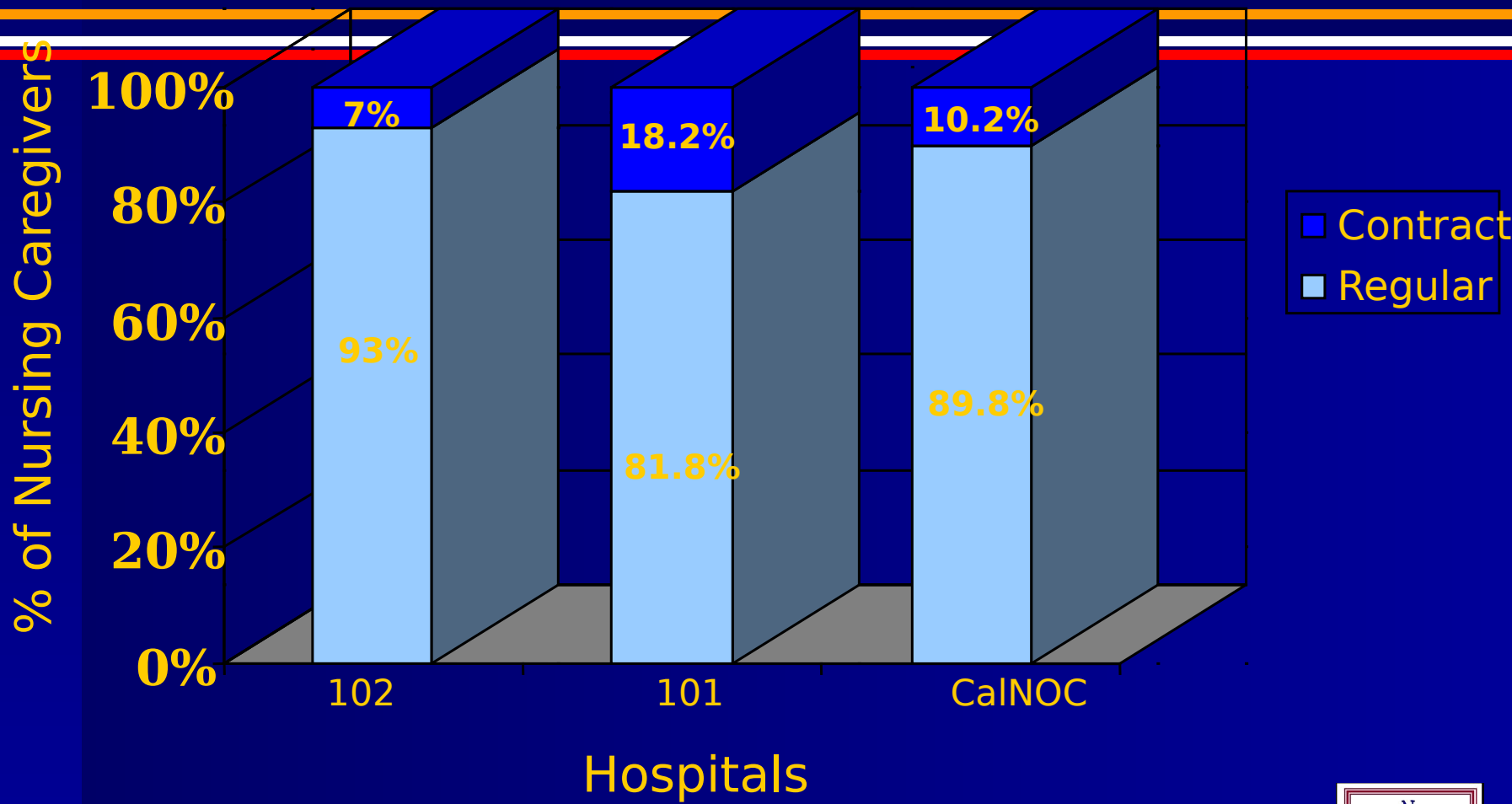
Average NCH*/Patient Day



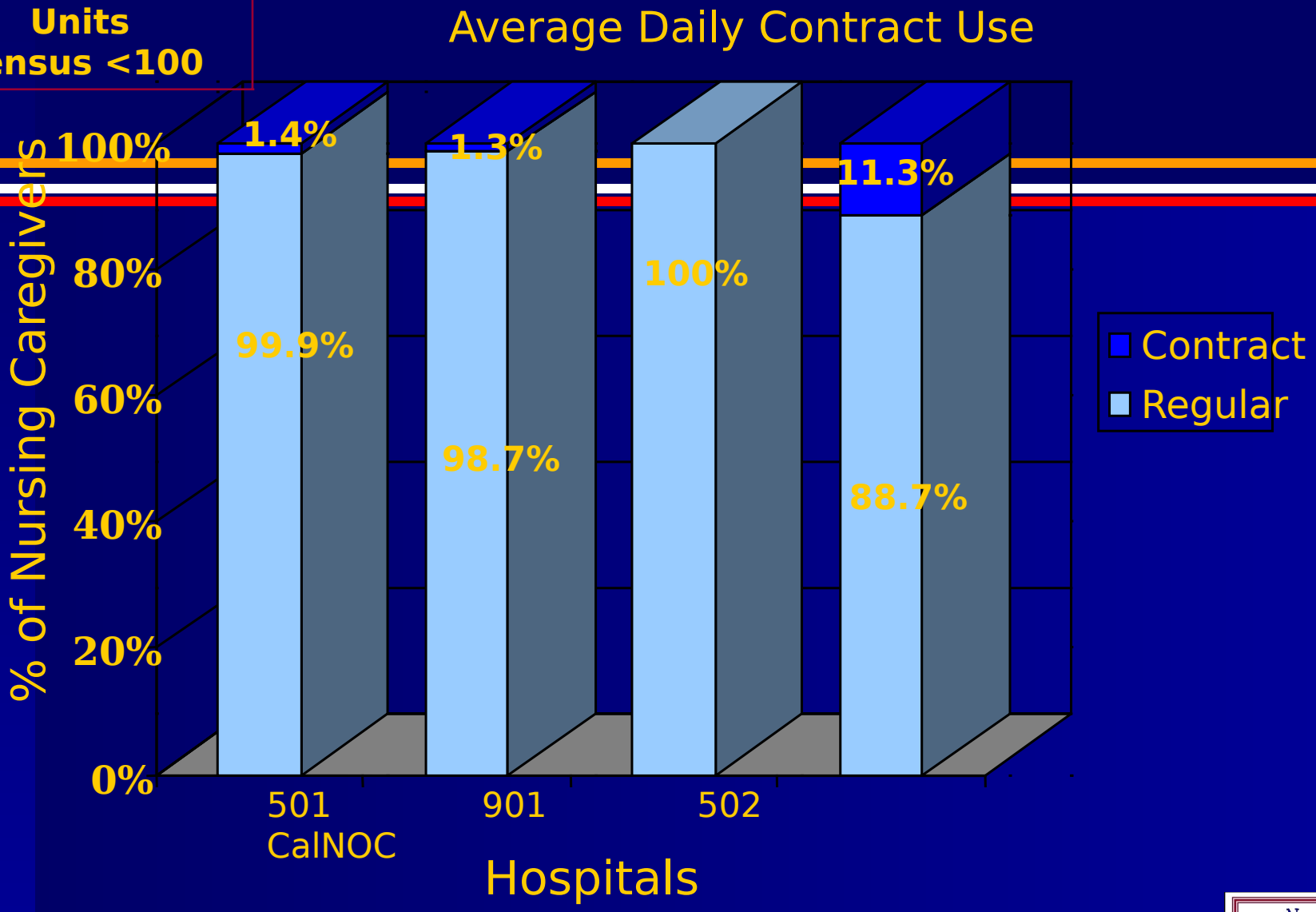
*NCH=Nursing Care Hours

Critical Care Units Census 100-199

Average Daily Contract Use

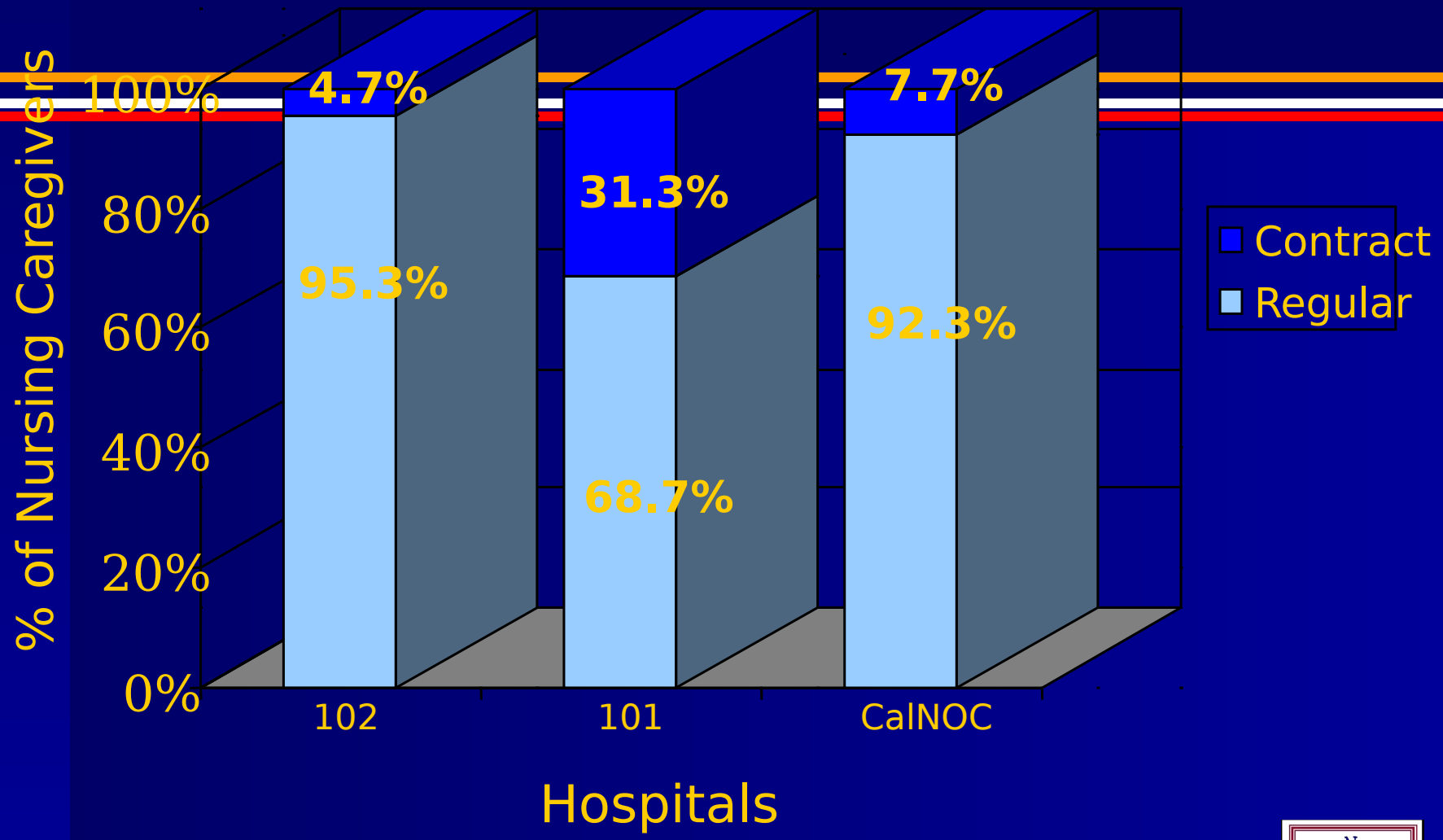


Critical Care Units Census <100



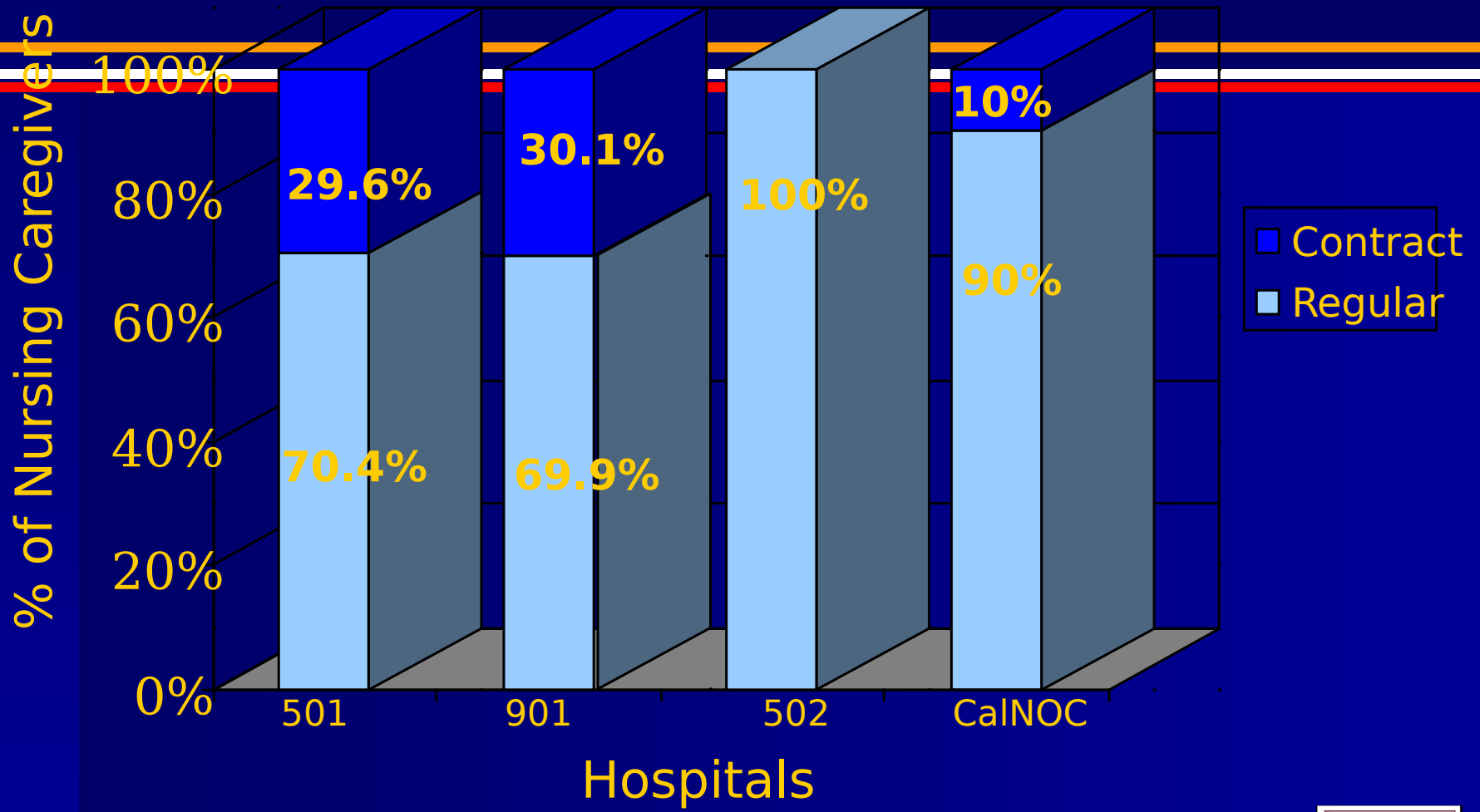
Medical Surgical Units
Census 100-199

Average Daily Contract Use



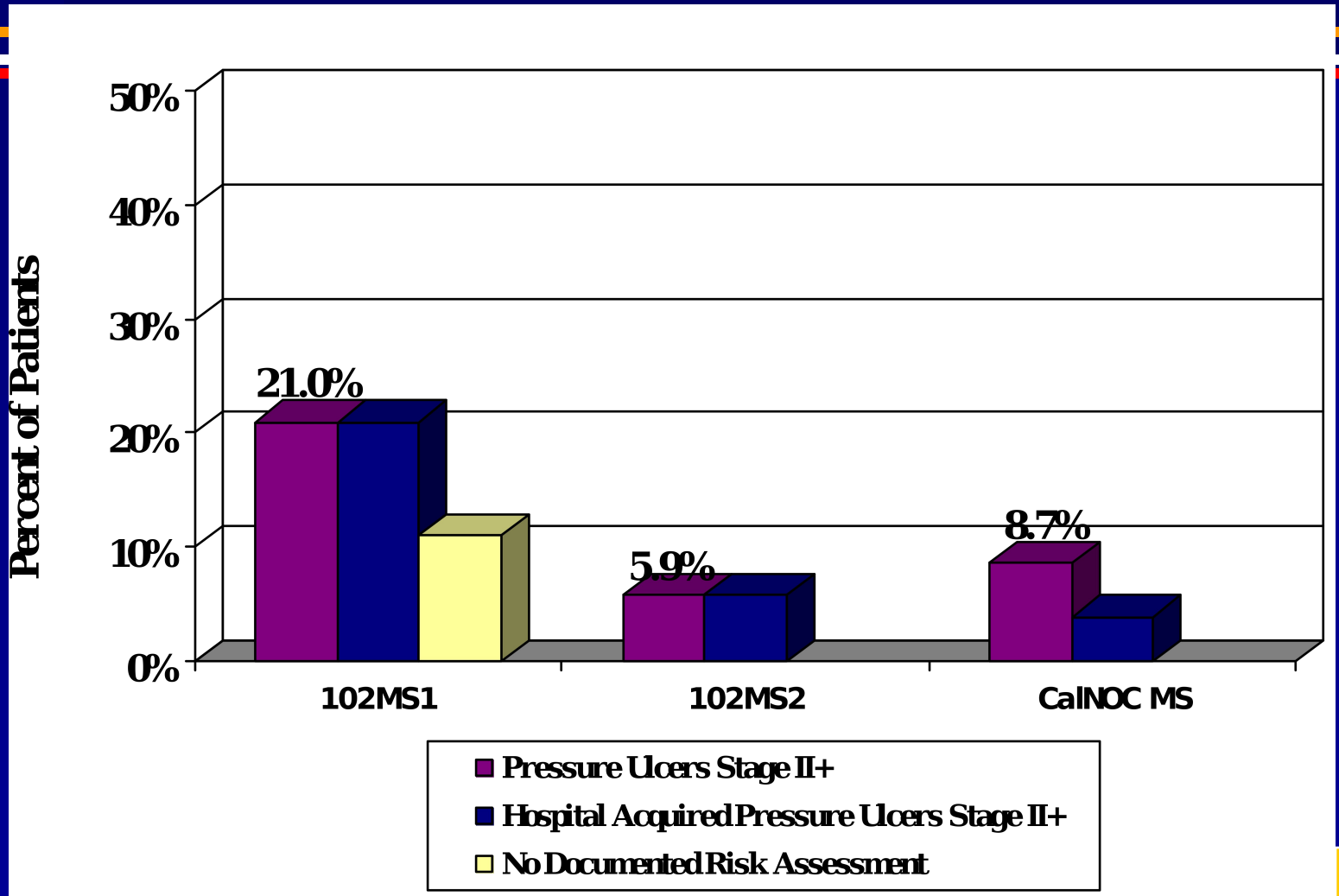
Medical Surgical Units
Census <100

Average Daily Contract Use



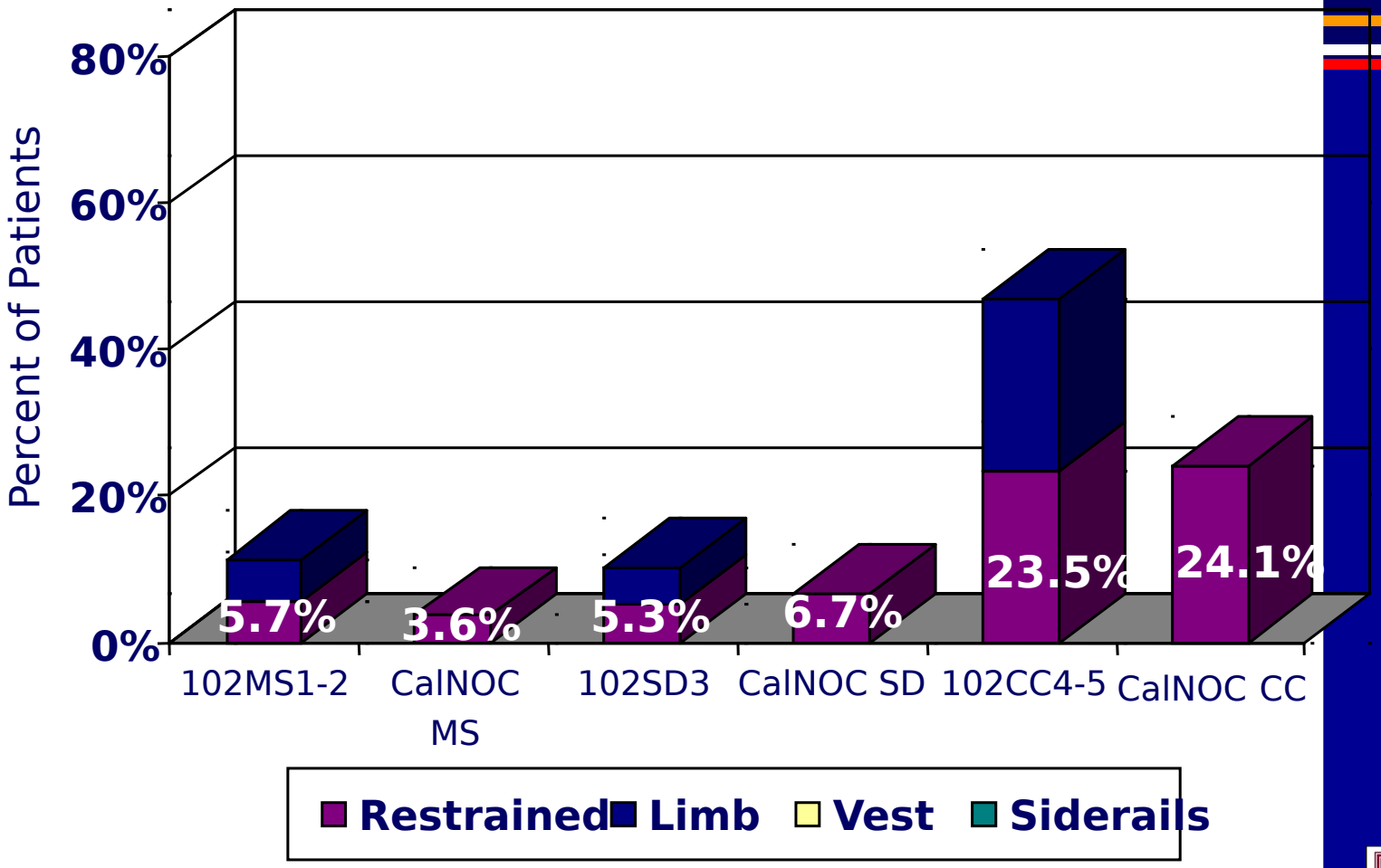
Pressure Ulcer Prevalence Comparison- Facility 102
Adult Medical-Surgical Units

Census
100-199

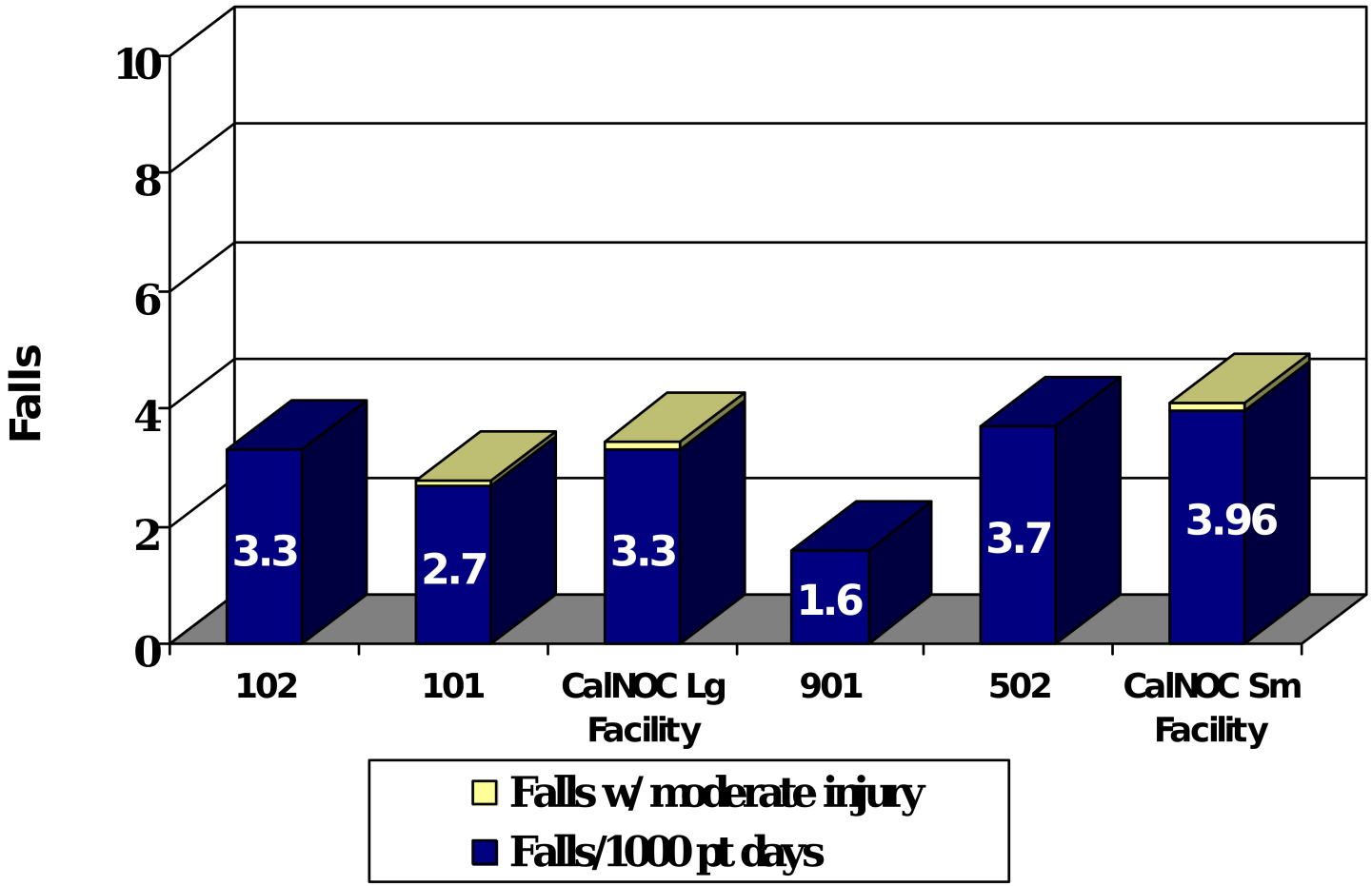


Census
100-199

Adult Medical-Surgical, Stepdown & Critical Care Units

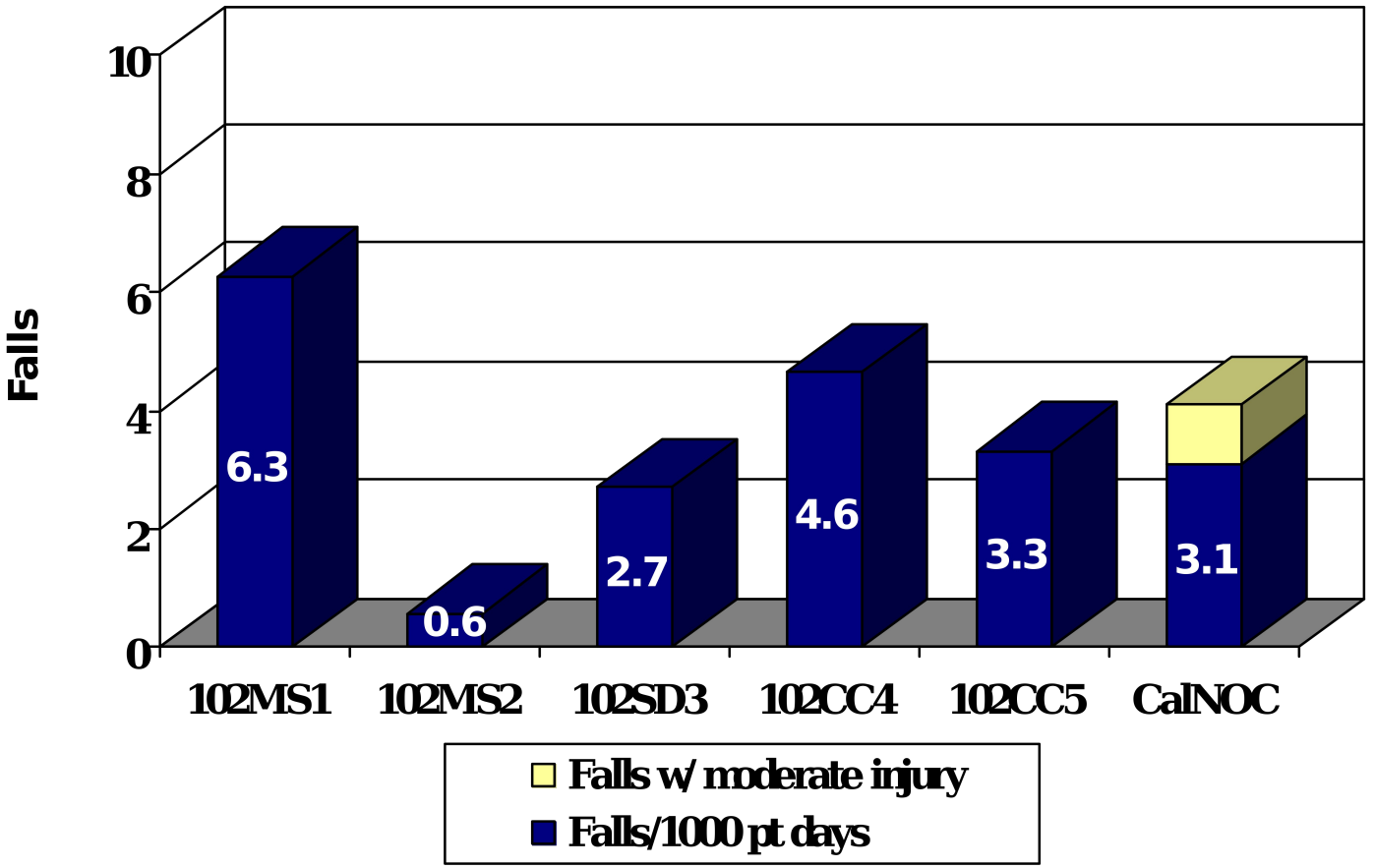


Falls Comparison - MilNOD
All Adult Medical-Surgical Units



Census
100-199

Falls Comparison – Facility 102
All Units



Census
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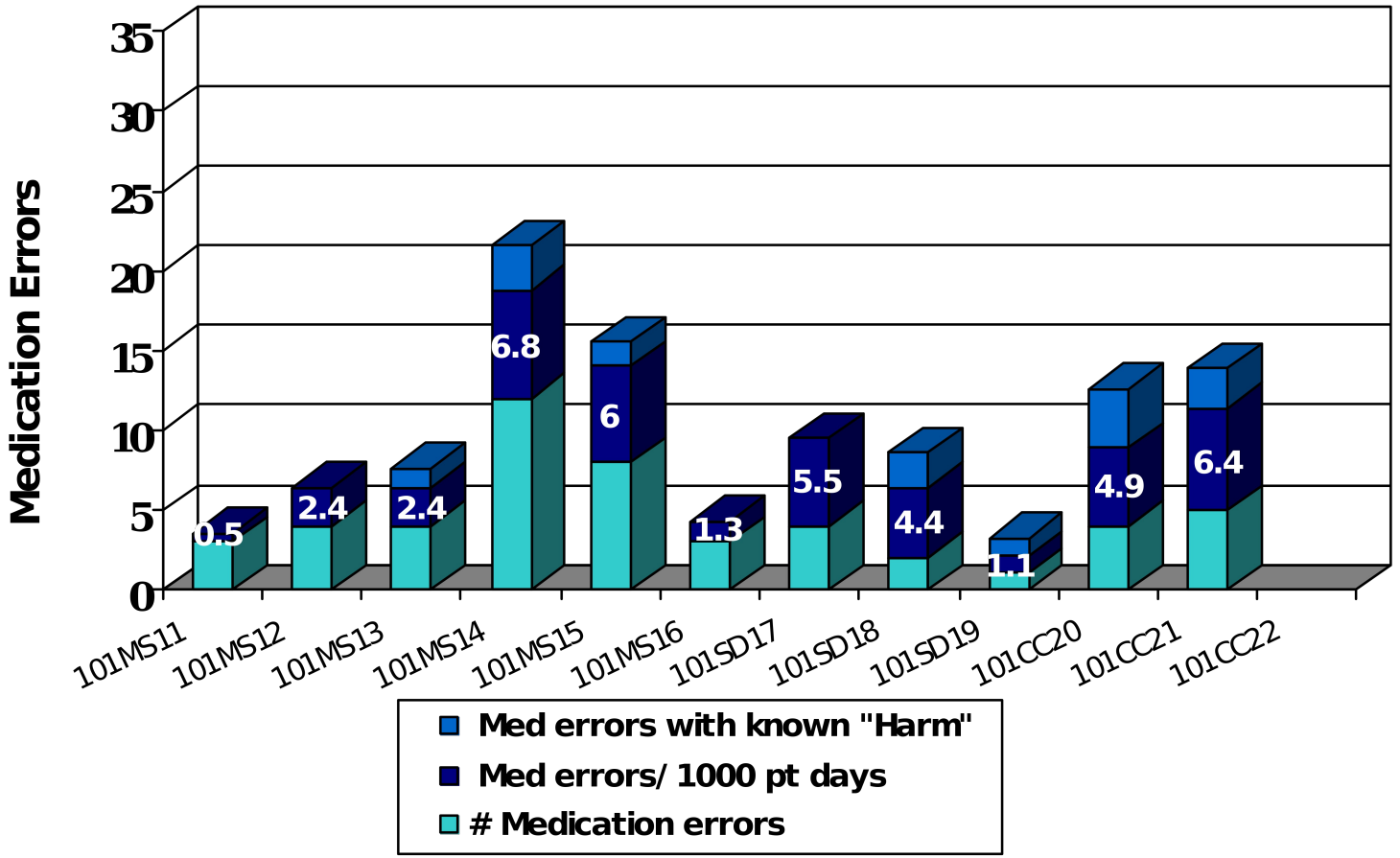
Medication Errors – Facility 101
Adult Medical-Surgical, Stepdown & Critical Care Units



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Census
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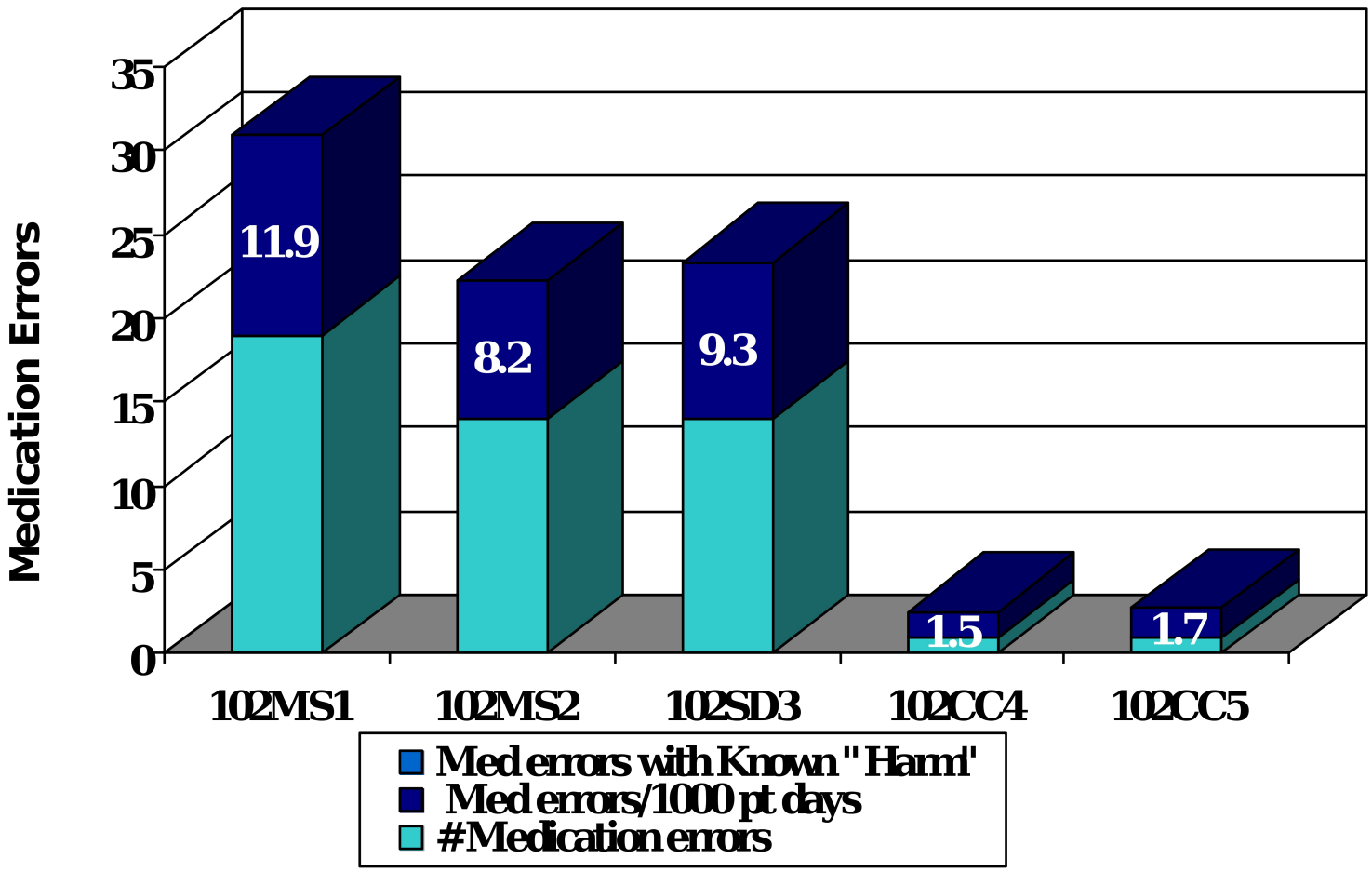
Medication Errors – Facility 102
Adult Medical-Surgical, Stepdown & Critical Care Units



The “Value-Added” of MilNOD

- Use of MilNOD data to meet JCAHO requirements for assessment of staffing effectiveness and patient outcomes
- Nursing staffs taught to stage pressure ulcers and perform prevalence surveys - 6 contact hours to 51 health care professionals
- OIF medevac patients observed to be at risk for pressure ulcers –interventions proposed

The “Value-Added” of MilNOD

- All sites have implemented standardized evidence-based programs of falls risk assessment and prevention
- Promoted teamwork across Army, Navy and Air Force and among MTFs
- MEDCEN analytic resources available to smaller facilities

What are the elements of MilNOD's success to date?

- Principals and consultants are in it for the long run
- Continuous grant funding obtained
- Military nursing leadership is invested
- Standardized practices & processes across systems – shared database manager, statistician, health service research experts
- Fertile ground for research
- Excellent training opportunity for novice researchers
- Win-Win for nurse leaders and researchers

Professional Dividends

- Robust partnership with CALNOC
- MilNOD - Invited participant at the Council for the Advancement of Nursing Sciences Conference on Clinical Nursing Research Centers 2003
- Paper on Falls Risk Assessment and Prevention Program requested for submission to AHRQ/DoD publication *"Advances in Patient Safety"*

Professional Dividends

- MilNOD assisted the Veteran's Administration Nursing Outcomes Database (VANOD) Project
- MilNOD rep recruited by DoD to serve on the NQF Steering Committee to select national voluntary consensus standards for nurse sensitive care
- MilNOD rep working with CalNOC to examine advanced statistical methodologies for analyzing staffing and outcome data.

What is the Future of MilNOD?

- Overall goal is to make measurement of nurse staffing and patient outcome data a routine standardized business practice in the DoD - no longer funded by research alone
- Decision support tools available to nursing leaders
- Web-based access to server - greater ease of data entry and access to real-time reports
- Potential data sharing with CALNOC, VANOD, NDNQI

Future Directions

- MilNOD IV will examine relationships between staffing and skill mix and adverse patient and nursing events.
- MilNOD V will add more sites
- Newsletters and/or other dissemination mechanisms are planned
- Ultimatel goals:
  - Evidence linking nurse staffing to patient outcomes
  - DoD-wide nursing Decision Support Tools

Lessons Learned in MilNOD

- Data entry is resource intensive
- Web-based data entry is essential
- Need for intensive staff training in pressure ulcer survey methods
- Staffing data frequently not recorded
- Nurses managers want real-time reports
- Multicenter data coordination is difficult
- Inter-rater reliability must be assessed
- Reservists presented a unique staffing categorization challenge

Why is MilNOD Unique?

- DOD Facilities only
- Fundamental belief that the SHIFT should be the UNIT of ANALYIS
- Only study undertaking comprehensive examination of the reliability and validity of the data at the unit level using source data

MilINOD Key Success Factors: MTFs Working Together

- Hospital sites viewed as customers; partners
- Building collaboration and commitment
- Consensus on definitions
- Planning for data collection
- Consensus on data collection methods
- Designated POC at each hospital responsible for oversight
- Getting valuable info into the hands of nurses who need it at a variety of levels

MilNOD's Family Tree

ANA Nursing Indicators

CalNOC

ANOD

VANOD

MilNOD

HSR&D
Health Services Research & Development Service

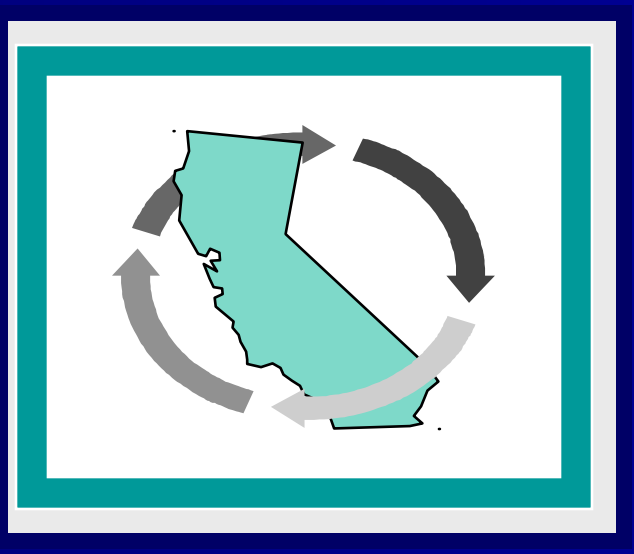
Research Highlight

The VA Nursing Outcomes Database Project: Leveraging Nursing Data to Improve Quality

By Marti Buffum, D.N.Sc., A.P.R.N., B.C., C.S., Anne Sales, M.S.N., Ph.D., R.N., and Sandra K. Janzen, M.S., R.N., C.N.A.A.

Acknowledgement

TriService Nursing Research Program 19 92



CalNOC

Military Nursing Outcomes Database